Patent Claims:

1. Flow-mechanically effective surface of a device moving in a fluid, especially a flying machine, especially a lifting surface of a flying machine, whereby the surface (1) comprises an elastic axis (EA) extending in the span direction (6) of the surface (1) and an adjustable control surface (3), characterized in that the surface (1) is elastically deformable in a bending direction and/or in a direction about the elastic axis (EA) dependent on the adjustment of the control surface (3) while changing the induced flow-mechanical resistance, and that a control and/or regulating arrangement (10, 11, 12; 13, 14, 15) for the adjustment of the control surface (3) in the sense of a minimization of the induced flow-mechanical resistance of the surface (1) is provided.

2. Flow-mechanically effective surface according to claim 1, characterized in that the control surface (3a; 3b; 3c; 3d; 3e; 3f) is arranged offset by a prescribed spacing distance relative to the elastic axis (EA).

3. Flow-mechanically effective surface according to claim 1 or 2, characterized in that the control surface (3a; 3b; 3c; 3d; 3e; 3f) is arranged rotatably supported about a rotation axis (4), and that the rotation axis (4) or at least a component thereof extends in the direction of the elastic axis (EA).

4. Flow-mechanically effective surface according to claim 2 or 3, characterized in that the control surface (3) is arranged by a prescribed spacing distance behind the elastic axis (EA).

5. Flow-mechanically effective surface according to claim 2 or 3, characterized in that the control surface (3a; 3b; 3c; 3d; 3e) is arranged by a prescribed spacing distance in front of the elastic axis (EA).

6. Flow-mechanically effective surface according to one of the claims 1 to 5, characterized in that the control surface (3b; 3d) is arranged within the wing span.

7. Flow-mechanically effective surface according to one of the claims 1 to 5, characterized in that the control surface (3a; 3c; 3e; 3f) is arranged outside of the wing span.

8. Flow-mechanically effective surface according to claim 6 or 7, characterized in that the control surface (3a; 3b) is arranged behind the leading edge of the surface (1).

9. Flow-mechanically effective surface according to claim 6 or 7, characterized in that the control surface (3c; 3d) is arranged in front of the leading edge of the surface (1).

10. Flow-mechanically effective surface according to one of the claims 1 to 9, characterized in that the control surface (3c; 3e) is provided in addition to a wing tip surface (winglet) (2) at the surface tip.

11. Flow-mechanically effective surface according to one of the claims 1 to 9, characterized in that the control surface (3f) itself is embodied as a wing tip surface.

12. Flow-mechanically effective surface according to claim 11, characterized in that the rotation axis (4) of the control surface (3f) forming the wing tip surface (2) extends obliquely relative to the direction of the elastic axis (EA).

13. Flow-mechanically effective surface according to one of the claims 10 to 12, characterized that the surface (1) is a lifting wing of a flying machine, whereby the wing tip surface (2) continues the lifting wing at its tip obliquely or vertically upwardly.

14. Flow-mechanically effective surface according to claim 10, characterized in that the surface (1) is a lifting wing of a flying machine, whereby the wing tip surface (2) continues the lifting wing obliquely or vertically upwardly and the control surface (3a; 3b; 3c; 3e) continues the lifting wing in its direction or obliquely downwardly.

15. Flow-mechanically effective surface according to one of the claims 1 to 14, characterized in that the surface (1) is the lifting surface of an aircraft.

16. Flow-mechanically effective surface according to one of the claims 1 to 14, characterized in that the surface (1) is the lifting surface of a rotary wing aircraft.

17. Flow-mechanically effective surface according to one of the claims 1 to 16, characterized in that there is provided a control arrangement (10, 11, 12) for the generation of an actuating signal for the control surface (3) from data relating to the aircraft loading and the flight condition, with utilization of stored nominal value data.

18. Flow-mechanically effective surface according to one of the claims 1 to 16, characterized in that there is provided a regulating arrangement (13, 14, 15) for the generation of an actuating signal for the control surface (3) from comparison of measured data representing the actual elastic deformation of the flow-mechanically effective surface (1) with nominal data representing a nominal deformation of the flow-mechanically effective surface (1) prescribed for the aircraft loading and the flight condition.